

REQUEST FOR PROPOSALS

PROJECT 184 RELICENSING

Environmental Impact Report and Environmental Studies Related to Relicensing

Introduction

The El Dorado Irrigation District (EID) is seeking qualified consulting firms to conduct a number of environmental studies, prepare an Environmental Impact Report (EIR) and other studies related to its pending application to the Federal Energy Regulatory Commission (FERC) for relicensing of Project 184. Respondents to this request may submit a proposal either for Part A, Part B or both, as described below and further discussed in detail in the following sections:

Part A: Environmental Studies related to FERC Relicensing Application 184-065 and Section 401 Water Quality Certification.

Part B: Environmental Impact Report and Mitigation Monitoring Program pursuant to the California Environmental Quality Act (CEQA).

A two-phase selection process will be followed consisting of: 1) submission of a qualifications statement and statement of general approach to work proposed; and (based upon EID's review of qualifications and approach), 2) by invitation, selected respondents will be invited to submit a full proposed scope of work including costs and timelines for each task for which work is proposed.

Project 184

Project 184 consists of four storage reservoirs on the South and Silver Forks of the American River including Aloha, Echo, Silver and Caples Lakes; a Diversion Dam located near Kyburz on the South Fork; a Canal running approximately 22.3 miles on the south side of the American River consisting of flumes, pipelines and tunnels; a forebay reservoir in the vicinity of Pollock Pines; and, a Penstock and Powerhouse. Minor diversions also historically exist from seven tributaries to the El Dorado Canal.

Originally constructed as a water project in the 19th Century and supplying approximately 15,080 acre feet per year (af/yr) to EID, additional storage, a 21 Megawatt (MW) hydroelectric Powerhouse and other improvements were added in the early 1920s. The project was owned by the Pacific Gas and Electric Co. (PG&E) until 1998 when ownership was transferred to EID. The current hydroelectric license issued by the Federal Power Commission (now FERC) expires in February 2002.

In a major January 1997 storm, approximately two years prior to EID acquisition, Project 184 suffered significant damage to the Diversion Dam, certain sections of the Canal and the Powerhouse. The project has remained inoperable for power generation to this time, however, a temporary repair of the Canal has allowed the diversion of approximately 40 cubic feet per second (cfs) to the Forebay for subsequent diversion into the EID water supply system, continuing the historic consumptive use of approximately 15,080 af/yr by EID from the system.

In 1999, EID applied to FERC for an amendment of its current license to allow for the reconstruction of the Diversion Dam; repair of the damaged Canal sections, including the addition of a new tunnel section; and repair of the power generation equipment at the El Dorado Powerhouse. In September 2000, FERC granted approval for the repair of the Diversion

Dam subject to certain conditions. Construction of the Diversion Dam was completed in December of 2000. Action by FERC on the remainder of the repairs requested under the Amendment Application has also recently be granted. Components of Project 184 are presented in Attachment 1, *Project Facilities*.

Water is released from the four storage reservoirs (Aloha Lake, Echo Lake, Silver Lake and Caples Lake) into the South Fork at seasonally varying volumes. Up to 165 cfs of the South Fork flow is diverted at the El Dorado Diversion Dam located near the community of Kyburz, at an elevation of 3,911 feet above sea level. The diverted water enters into a 22.3 mile-long water conveyance system, the El Dorado Canal, which terminates at the Forebay. The Canal descends more gradually than does the South Fork, with an elevation drop of approximately 110 feet compared to approximately 2,000 feet in the South Fork. Several smaller tributaries are diverted directly into the Canal between the Kyberz Diversion Dam and the Forebay. These include: Alder Creek, Mill Creek, Bull Creek, Perrin (Carpenter) Creek, No Name Creek, Ogilby Creek, and Esmeralda Creek.

The principal Project facilities are described in the following sections:

Lake Aloha (Medley Lake)

Lake Aloha, formerly referred to as the Medley Lakes, is located approximately five miles southwest of South Lake Tahoe within the Desolation Wilderness of the Eldorado National Forest, in El Dorado County. A rubble and masonry main dam and 11 auxiliary dams form the reservoir. The main dam was constructed in 1917 and is located at the south end of the lake. The main dam rises 20 feet above the streambed and has a crest length of 113 feet. The 11 auxiliary dams range between 1 foot 4 inches and 8 feet 6 inches in height and between 9 feet and 140 feet in length. Dam No. 6 has a length of 92 feet and a maximum height of 6 feet and functions as the spillway together with the main dam. The combined spillway capacity is over 600 cfs with a one-foot spill depth. Water is released from Lake Aloha into Pyramid Creek, a tributary to the South Fork, through a 32-inch by 32-inch conduit 15 feet 2 inches in length, located at the bottom of the main dam. A manually operated metal slide gate located at the upstream end controls the outlet. The current license requires a minimum release of 2.0 cfs or natural flow, whichever is less, in Pyramid Creek as measured at the U.S. Geological Service gauge near Twin Bridges (PG&E 1998).

Echo Lake

Echo Lake is located about five miles south-southwest of South Lake Tahoe, within the Lake Tahoe Basin Management Unit in El Dorado County, at an elevation of 7,411 feet. The lake actually consists of two lakes, Upper Echo Lake and Lower Echo Lake. However, Upper Echo Lake is not operated as part of the Project No. 184 license. Originally a natural lake, Lower Echo Lake's capacity was increased in 1876 and upgraded in 1923 by about 1,900 acre feet (af). The current reservoir is formed behind a 14-foot high, 320-foot long, roller-compacted concrete dam within the Upper Truckee River Basin. The spillway is located on the left abutment of the dam and has a width of 30 feet and a depth of 9.5 feet. The spillway consists of five 6-foot by 6-foot sections that, when fully open, can convey 1,250 cfs of water with 1.5 feet of freeboard. The spill volume can be controlled using flashboards. Water is released from Echo Lake through the Echo Lake Conduit, a manually operated outlet located at the bottom of the dam. Water conveyed through the Conduit discharges into the South Fork drainage near the town of Phillips. The conduit is 6,125 feet long and is comprised of pipe, ditch, and tunnel with a maximum capacity of 30 cfs (PG&E 1998). The current FERC license does not contain provisions regarding minimum releases from Echo Lake.

Caples Lake

Caples Lake is located in Alpine County, near Kirkwood, at an elevation of 7,798 feet. The lake was constructed in 1922 by increasing the capacity of two, natural 100 af lakes. Two dams were built that combined the two smaller lakes into one large lake. The main dam is a gunite core earthfill structure located on the northwest end of the reservoir. The dam has a maximum height of 84.5 feet, a crest length of 1,200 feet, and is provided with a 1.5 foot wave coping wall. An auxiliary dam is located at the southwest end of the reservoir, is 18 feet high, has a crest length of 300 feet and is comprised of two distinct components: a concrete section and an earthfill section. The concrete section consists of a combination of gravity and arch elements. The earthfill section of the dam is 33 feet high and has a crest length of 237 feet and has a concrete core. The spillway is located in the concrete section of the dam and is 131.5 feet wide and 6 feet deep. The spillway has a capacity of 1,800 cfs with 3.5 feet of freeboard.

Water is released from Caples Lake into Caples Creek, which flows into the Silver Fork of the American River, which joins the South Fork near Kyburz. Water is released from the reservoir through a 4.5 foot horseshoe concrete conduit located at the bottom of the main dam. Flow through the conduit is controlled with 2.5 foot by 2.5 foot manually operated slide gates. The current FERC license requires minimum flow releases from Caples Lake of 5.0 cfs or natural flow, whichever is less (PG&E 1998).

Silver Lake

Silver Lake is located in Amador County near Kirkwood, approximately seven miles west of Caples Lake, in the Silver Fork of the American River drainage, at an elevation of 7,261 feet. Initially, Silver Lake was a relatively small natural lake. The first dam on Silver Lake was completed in 1876 and provided approximately 5,000 af of active storage. The dam was enlarged in the early 1920's to provide the present active storage capacity. The spillway is located on the left abutment and consists of a double outlet chute controlled by two radial gates, each 14 feet 9 inches wide and 11 feet 3 inches high. The spillway has a capacity of 2,840 cfs with two feet of freeboard.

Silver Lake lies within a watershed of 15.2 square miles, and is fed by several unnamed perennial creeks. Water is released from Silver Lake into the Silver Fork of the American River, a tributary to the South Fork, through a 26-inch pipe grouted inside a 32-inch pipe located at the bottom of the dam. A 36-inch, manually operated gate controls the outlet. The current FERC license requires minimum flow releases from Silver Lake of 2.0 cfs or natural flow, whichever is less (PG&E 1998).

Echo Lake Conduit

The Echo Lake Conduit conveys water from Lower Echo Lake into the South Fork drainage near Phillips. The conduit is 1.16 mile (6,125 feet) long and is comprised of 0.46 mile of 36-inch diameter pipe, 0.49 mile of open Canal, and 0.21 mile of tunnel. The Echo Lake Conduit has a maximum capacity of 30 cfs (PG&E 1998).

El Dorado Diversion Dam

Water is released from the Project reservoirs into tributaries of the South Fork American River. Water from the South Fork is diverted into the El Dorado Canal at the El Dorado Diversion Dam, located about 1.5 mile downstream of the town of Kyburz. The Diversion Dam and associated fish passage facilities were essentially destroyed during the January 1997 storms. Consequently a new dam, of similar size and footprint, was rebuilt in late 2000.

The new Diversion Dam is composed of steel bins filled with rock and gravel. The dam is approximately 12 feet wide, 20 feet tall, and 165 feet long. A new fish ladder, approximately 54 feet long, eight feet wide, nine feet tall and composed of four compartments, was built on the north side of the dam. The new facilities also include a 73-foot long fish screen and new intake system.

El Dorado Canal

Water is conveyed from the El Dorado Diversion Dam to the Powerhouse through the 22.3-mile long El Dorado Canal. The Canal has a diversion capacity of about 165 cfs. Various sections of the Canal were severely damaged by landslides caused as a result of the January 1997 storms. Prior to the damage, the Canal consisted of 5.73 miles of unlined canal, 11.58 miles of lined canal, 0.19 mile of lined tunnel, 0.22 mile of unlined tunnel, 3.94 miles of flume, and 0.63 mile of 72 inch and 60 inch steel pipe.

The Canal is being repaired under the existing license. The permanent repairs will involve replacing Flumes 10 and 12 with pre-cast concrete flume boxes and constructing a tunnel from Bull Creek to Mill Creek. These permanent repairs are described in detail in EID's Application for Amendment of License dated July 1999.

Alder Creek Diversion Dam and Feeder

The Alder Creek Diversion Dam is a small concrete dam located in Section 36 Township 11N Range 14E. The dam has a crest length of 70 feet and a maximum height of 9.5 feet. The intake structure is located on the right abutment of the dam where flows are regulated into the Alder Creek Feeder by a 24-inch manually operated slide gate. The Alder Creek Feeder is approximately 0.87 mile long and consists of an 18-inch diameter steel pipe with a capacity of 15 cfs.

El Dorado Forebay

The El Dorado Forebay is situated about 0.75-mile north of Highway 50, near the town of Pollock Pines at an elevation of 3,791 feet. An earthfill dam forms the Forebay. The dam has a maximum height of 91 feet and a crest length of 836 feet. The Forebay has a gross storage capacity of 365 af, a usable capacity of about 364 af, and covers an area of 23 acres at full pool. The spillway is 20 feet wide, 6.6 feet in depth, and has a capacity of 450 cfs with 2.4 feet of freeboard. The spillway is located on the left abutment of the dam.

The Forebay is used to regulate water into the El Dorado Powerhouse and into an EID water supply Canal. Water for the Powerhouse is directed through the dam by a 60-inch conduit controlled by a 72 inch hydraulically operated butterfly valve. Two additional 60-inch pipes parallel the outlet but are not used. Water for EID's water supply is conveyed through a 36-inch cast iron pipe into a canal. EID's water supply Canal is not included in the FERC license.

El Dorado Pipeline and Penstock

Water from the Forebay is conveyed to a surge tank through a steel pipeline about 11,487 feet long. A 54-inch, 3,443 feet long steel Penstock extends from the surge tank to the Powerhouse, where it bifurcates into two 30-inch diameter pipes. The steel pipes direct water through two turbines located in the El Dorado Powerhouse.

El Dorado Powerhouse

The Powerhouse is located on the South Fork of the American River, approximately 3 miles north of Highway 50, directly downstream of the Forebay. The Powerhouse is a steel frame structure approximately 110 feet long by 40 feet wide, with reinforced concrete walls. The

Powerhouse houses two 14,000 horsepower single overhung impulse turbines. Each turbine is directly connected to three phase, 60 cycle, 6,600 volt, 12,500 kilovolts amperes generators having a power factor of 0.8. The plant operates under a maximum static head of 1,913.9 feet.

The Powerhouse received water diverted from the South Fork via the Forebay and Penstock. Most of the water managed by Project 184 is returned to the South Fork at the Powerhouse. The diversion amounts to not more than 40 cfs of water at any time. The Powerhouse discharges into the South Fork upstream of Slab Creek Reservoir, which is licensed as part of Project No. 2101, a multi-facility hydroelectric project owned and operated by the Sacramento Municipal Utility District (SMUD). Up to 175 cfs of water can be discharged into the South Fork, depending upon how much water is released from the Forebay for power generation.

The Powerhouse has not operated since the Canal and Diversion Dam were damaged during the 1997 storm event. Because of the storm damage a number of repairs are in the process of being implemented. These include: a new flood wall within the existing parking area, repairs to flood- damaged equipment, and repairs to the flood damaged road embankment. The repairs to the Powerhouse are described in detail in EID's Application for Amendment of License dated July 1999.

Additional Points of Diversion

In addition to Alder Creek, the Project diverts water from several small tributaries to the South Fork, including: Mill Creek, Bull Creek, Plum Creek, Perrin (Carpenter) Creek, an unnamed creek, Ogilby Canyon, and Esmeralda Creek. Water is diverted from these tributaries into the El Dorado Canal under pre-1914 water rights use established for the purposes of domestic and municipal use, and power production. Water from these tributaries is introduced to the El Dorado Canal using feeder conduits with manually operated gates. The gates can be set to either divert water into the Canal or to bypass water over or under the Canal.

More complete descriptions of Project 184, its facilities and operations under the current license, are contained in the resource documents referenced at the end of this RFP.

Part A: Environmental Studies related to FERC Relicensing Application 184-065 Section and 401 Water Quality Certification

The Federal Energy Regulatory Commission, under authority of the Federal Power Act (U.S.C. § 79-(a)-825(r), may issue licenses for up to 50 years for the construction, operation and maintenance of non-federal hydroelectric projects. EID applied for a new license (re-licensing) of Project 184 on February 22, 2000. FERC staff have been assigned and a contractor (Louis Berger Group, Inc.) has been retained by FERC to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act, as amended. Scoping sessions for the EIS were conducted by FERC on September 20 and 21, 2000 and the period for written comments ran until October 23, 2000. The preliminary schedule for the EIS anticipates a draft EIS to be released in September 2001.

Although FERC is responsible for licensing, it coordinates with a number of state and federal agencies in carrying out its responsibility. These include, but are not limited to:

- The United States Forest Service
- The United States Fish and Wildlife Service
- The California State Water Resources Control Board (via §401 certification)
- The California Office of Historic Preservation
- The California Department of Fish and Game
- The Central Valley Regional Water Quality Control Board

In addition a number of other organizations are currently on the FERC service list for the project including:

1. Amador County
2. Alpine County
3. American Whitewater Affiliation
4. California Sportsfishing Protection Alliance
5. Center for Sierra Nevada Conservation
6. El Dorado Citizens for Water
7. El Dorado County Taxpayers for Quality Growth
8. Sierra Club
9. Kirkwood Mountain Resorts
10. Friends of the River
11. Trout Unlimited
12. Sacramento Municipal Utility District

It is requested that responding firms make no effort to individually contact staff at the resource agencies during the qualifications phase of this selection process. Data and study requests that have been expressed by these agencies are summarized below. Further descriptions can be found in the correspondence from the agencies contained in the responses to FERC comment requests and in the comments on the NOP.

A substantial environmental database exists in the 1999 EIR for the Amendment Application¹ and other studies, primarily conducted between 1996 and 2000 by Resource Insights, Inc. as a consultant to EID. Stream gauge data also exists as collected by PG&E and EID over many years at various points in the watershed. A substantial amount of this information has been indexed and is available for review by appointment. However, in some cases the database may be incomplete for the level of analysis requested and will need to be supplemented by additional fieldwork to be performed by the consultant selected. For those tasks, an element of work requested includes a determination, by the consultant, of the sufficiency of available data and a proposal for the completion of remaining studies.

In preparing the EIS, FERC may require the applicant (EID) to provide information necessary to develop the EIS by issuing "Additional Information Requests" (AIR's). No AIR's have been issued to date, however, EID anticipates a number of study and data requests. This expectation is based upon EID's discussions with involved agencies and upon comments received from interested parties during the CEQA NOP process which was initiated at the time of filing the FERC Relicensing application in February, 2000 (see attachments). These include:

Fluvial Geomorphology

Channel Classification

Channel classification information may be necessary to document, existing channel conditions, inventory sensitive channel reaches, to determine potential project-related effects, and to monitor changes in channel configuration over time. Stream channels in potentially affected stream reaches will be classified using the Rosgen Level II Stream Type Classification system. The structure and integrity of stream channels, relative to the potential for project-related impacts, will be evaluated. Quantitative parameters to be measured include bankful

¹ See list of Resource Documents.

width/depth ratio, substrate composition, cross-sectional area, stream gradient, entrenchment ratio, and sinuosity.

Upon completion of the Level II channel classification, channel condition of each primary stream and tributary will be described using the Rosgen Level III classification system. Quantitative parameters to be included are pool depth, stream bank angle, stream bank stability, stream bank vegetative cover, bedload deposition pattern, and stream bank vegetation root depth versus stream bank height above bankful height. In particular, low gradient, fluvial reaches with associated flood plain may be investigated.

Work on this study has been conducted since 1999, however the adequacy of the work is unknown. The contractor will determine the status of the Rosgen Channel Classification Studies, and determine whether they have been completed to the satisfaction of the agencies. The contractor will provide a scope of work and schedule for completing remaining studies.

Channel Maintenance, Sediment Transport, and Slope Stability

Channel stability in the main stem of the South Fork of the American River and potential sediment sources from unstable slopes are issues identified for study. Sediment relates to the adequacy of streamflows and channel characteristics to meet appropriate sediment transport to maintain stability of the channel network. Analysis of streamflow needs for the maintenance of the physical properties of the stream channels may be required. A three-year continuous flow record should be used to determine flows for channel maintenance, along with collection of suspended sediment and bedload sediment information, including particle size distribution and stream discharge over a wide range of flows throughout the stream channel network.

The contractor will determine the status of Sediment Management Analysis, including channel maintenance, slope stability studies, and suspended sediment studies, and determine whether studies have been completed to the satisfaction of the agencies. The contractor will provide a scope of work and schedule for completing remaining studies.

Large Woody Debris

Large Woody Debris (LWD) is a component to the aquatic ecosystem. It relates to successful fish production, either directly as aquatic habitat (e.g., fish cover or fish prey item cover or indirectly as a source of necessary nutrient input). Monitoring LWD resources includes direct observation quantification, as both instream habitat and potentially-available habitat on adjacent stream banks for future input into the stream channel. A subset of the US Forest Service Habitat Mapping Protocols (Level III) includes quantifiable evaluation of LWD. The contractor will prepare an appropriate sampling regime for all potentially-affected stream reaches to determine presence and amount of available LWD.

Bathymetric Mapping of Lakes

Bathymetric information is needed to quantify storage capacity and basin topography of all lakes to assess stream flow release capabilities necessary to support all life stages of those aquatic species of concern.

Bathymetric mapping data exists for all lakes except for Lake Aloha. Because of Lake Aloha's location within a designated Wilderness Preservation Area (with restrictions on mechanized equipment), the contractor will need to work in concert with the Forest Service to develop a Bathymetry Mapping Plan. The Forest Service is aware of the mapping needs and is in the process of developing the necessary variances to allow the mapping to occur.

New and existing data will be used by the contractor to develop graphics with sufficient precision to illustrate a contour index no greater than five feet in Lake Aloha and shallower portions of Silver Lake. Mapping of Lake Aloha requires sufficient resolution to identify the

isolated lake basins inundated by the maximum pool and to identify the level at which the lake basins become separated from the reservoir pool. Field measurements in Lake Aloha should be concentrated around the areas that separate the isolated lake basins and ponds based on historic maps produced prior to impoundment.

Water Quality of Reservoirs and Streams

In response to EID's Scoping Document, the agencies requested a water quality evaluation of potential water quality impacts related to alteration of the natural hydrology of the South Fork American River watershed and the Upper Truckee River Basin watershed.

An evaluation of present water temperature and dissolved oxygen profiles of the four reservoirs has been conducted, however winter, spring, summer and fall profiles may be necessary to describe potential project-related effects to reservoir habitat and aquatic resources. Seasonal plankton samples will also be collected as an independent assessment of water quality conditions in the reservoirs. Primary productivity, along with a qualitative description of the zooplankton community, should be described and compared with seasonal results from similar reservoirs. The contractor will assess the status of reservoir water quality sampling, and prepare a sampling plan and conduct sampling to bring all reservoir sampling needs into compliance with agency requests.

The South Fork American River and its tributary streams have existing beneficial use designations of cold freshwater fish spawning and rearing habitat. Agencies are concerned about potential impacts to water temperature and other water quality parameters in potentially-affected reaches, resulting from project operations. Water temperature issues are discussed below under *Water Temperature Modeling*. Dissolved oxygen is another critical water quality parameter with proposed minimum levels (7.0 ppm in cold water reaches and 5.0 ppm in project-affected reaches). Sources of dissolved oxygen concentration *in-situ* measurements include all fish population monitoring and benthic macroinvertebrate sampling stations. The contractor will evaluate existing *in-situ* dissolved oxygen (and other measured water quality parameters, including pH and conductivity) data for baseline compliance to proposed water quality standards. The contractor will also develop a stream water quality sampling plan for periodic *in-situ* measurement of water quality parameters (i.e., temperature, dissolved oxygen, pH, conductivity) and analytical parameter monitoring (i.e., composite grab samples for lab analysis). Analytic parameter monitoring will include parameters associated with the following water quality objectives:

- Bacteria for Water Contact Recreation (e.g., fecal coliform),
- Biostimulatory Substances (e.g., nitrate/nitrite, unionized ammonia, orthophosphate)
- Chemical Constituents (e.g., trace metals),
- Color, and
- Oil and Grease.

Impaired and Unimpaired Hydrograph

Regulated and unregulated flow information is necessary to determine the range of variability of natural flows and to evaluate divergence in natural flow conditions. Agencies have requested 25 years of historic unimpaired and regulated flow information be compiled/simulated using standard U.S. Geological Service techniques for all drainages, including the quantification of diverted flows on the six small tributaries to the El Dorado Canal. This period includes a reasonable range of wet, dry, and normal year conditions and is represented by gauged flows. Much of this work has been completed, however, the status of the gauge installation and calibration is unknown. Installation of additional gauges on canal tributaries may be required.

The agencies request that three years of continuous flow data, including diurnal flow fluctuations, be collected.

The contractor will work with the EID Hydrologist to evaluate hydrologic modeling requirements related to Project 184 Relicensing. The contractor will also obtain the recent three years of flow data, and determine water year types. The contractor will further determine additional needs for meeting the project compliance requirements.

Indicators of Hydrologic Alteration Analysis (IHA)

The contractor will use methods developed by Richter et al (1996) to develop selected indicators of hydrologic alteration for the five groups of IHA statistics (i.e., magnitude of monthly water conditions, magnitude and duration of annual extreme water conditions, timing of annual extreme water conditions, frequency and duration of high and low flow pulses, and rate and frequency of change in conditions). This analysis will require the use of a mean daily flow database of the 25-year flow record (discussed under *Impaired and Unimpaired Hydrograph*) for selected reaches, and will include representative dry, normal, and wet years.

Water Temperature Modeling

The goal of this task is to conduct water temperature modeling of the entire stream network affected by project operations using the Stream Network Temperature (SNTMP) model and to evaluate alternatives to historic operations, which may provide temperature-moderating effects in the river downstream of the Diversion Dam. Specific needs include:

- A. identification of additional water temperature data needs throughout all stream reaches affected by project operations,
- B. identification of air temperature input data and determination if additional air temperature data needs to be collected,
- C. year-round lake temperature profiles adjacent to the spillways and outlet structures,
- D. humidity data for model calibration and verification, and
- E. validation of model results.

Some temperature data have been collected, however the modeling is not yet complete. The contractor will determine the status of the water temperature data collection effort and will provide a scope of work and schedule for completing additional data collection and modeling.

Aquatic Resources

Fish population surveys

Quantitative fish population sampling will be conducted at selected primary streams, small tributaries, and reservoirs within the FERC Project Boundary. A minimum of three years of data are required to be collected at each sampling location. The required three years of data collection has occurred at many, but not all, relevant streams and reservoirs. For example, a third year of data has not been conducted at Forgotten Flat, Oyster Creek, and Caples Meadow. In addition, six small tributaries that are diverted into the El Dorado Canal require three years of sampling. There are also several sites below the major reservoirs that have not been adequately sampled.

The contractor will be required to identify which streams have been adequately sampled and evaluate additional sampling needs to bring the fisheries study component into compliance with agency requests.

The contractor will develop a sampling plan for approval by the agencies that will finalize fish sampling needs. This plan will include all sites to be sampled, required years of data

collection, and the schedule for completion of sampling activities. Stream sampling will be accomplished using methods approved by the California Department of Fish and Game and the U.S. Forest Service for this project. These methods include fish removal-depletion method using backpack electroshockers and snorkel surveys in pool habitat. Sites will be selected upon review of the approved sampling plan and habitat mapping results that indicate representative habitat types. Sampling sites will contain all of the major habitat types that are present within the stream reach.

Sampling has been conducted at project reservoirs to determine effects of proposed and alternative lake level regimes on resident fish species. Data have been collected using overnight experimental gill net sets adjacent to shoreline spawning areas. Fyke or hoop net traps were also used in and around potential spawning and rearing shoreline habitat of the reservoirs. The contractor will utilize the two years of data that have been collected at all sites identified by the agencies, and evaluate the data for effects of lake level fluctuation and seasonal drawdown on spawning fish and larval/juvenile rearing and habitat.

Because the sampling/collecting techniques described above (i.e., electroshocking) may have negative impacts on amphibian populations, it has been recommended by the California Department of Fish and Game and the U.S. Fish and Wildlife Service that the contractor conducting said surveys have in their possession collecting permits for the various populations of special status species with the potential to occur in the project boundary (i.e., red-legged frog).

Aquatic-Dependent Amphibians and Reptiles

Baseline information is needed for amphibian and reptilian species, including special-status species as well as non-listed species, which may be affected by project operations. A study plan defining the breadth and scope of survey requirements shall be developed by the contractor for review and approval by the appropriate resource agencies. A minimum of three years of survey work has been asked for during informal meetings with California Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Forest Service and State Water Resource Control Board personnel. The contractor will be responsible for developing a species list, in cooperation with appropriate agency personnel. Field survey protocols will also be developed by the contractor and are expected to be compatible with those described by Fellers and Freel (1996), as well as U.S. Forest Service and U.S. Fish and Wildlife Service protocols.

Instream Flow Incremental Methodology

Physical Habitat Simulation Modeling (PHABSIM) relates to the assessment of the relationship between stream discharge and resulting aquatic habitat necessary to support all life stages for all species of concern, including rainbow trout, brown trout, and hardhead minnow. PHABSIM consists of hydraulic simulation with the HABTAT computer model. Integration of the three years of fish population data with the PHABSIM will provide an analysis of existing and potential habitat conditions within lakes and streams, under varying flow regimes. The Instream Flow Incremental Methodology (IFIM) data collection has been conducted over all necessary project streams and reaches. The contractor will utilize the existing IFIM data and address the following issues:

- effects of diverting varying quantities of water on aquatic resources,
- habitat requirements of existing aquatic resources,
- effects of project discharges on stream morphology and stability,
- development of measures for protection of aquatic resources,

- develop recommendations in consultation with appropriate resource agencies for instream flow requirements and flow regimes that will meet identified protection measures.

Benthic Macroinvertebrate surveys

Three years of benthic macroinvertebrate sampling are required at selected primary stream sites and small tributaries within the FERC Project Boundary. Sampling will be conducted according to the California Department of Fish and Game California Stream Bioassessment Protocols (CSBP). At each location, three riffles will be randomly selected from a field of five identified riffles. Two square feet of substrate will be sampled at each of three sampling sites (a total of six square feet) within each of the three riffles. Sample residue from each of the three sites within each riffle will be composited into a single sample, for a total of three samples at each location. Samples will be processed according to CSBP protocols. Adherence to the CSBP QA/QC protocols is also required, whereby 20 percent of the voucher collection will be re-identified by a California Department of Fish and Game certified laboratory.

Two years of data have been collected at 16 primary stream stations and five small tributary locations. However, additional sites will be required to adequately address agency concerns.

The contractor will be required to identify the status of field sampling and laboratory analysis, and will summarize the results to date. The contractor will evaluate additional sampling needs, and conduct sampling as required, to bring the macroinvertebrate study component into compliance with agency requests.

Macroinvertebrate sampling is also required in project reservoirs. The contractor shall determine the status of reservoir sampling and sampling methodology should be compatible with that recommended by the California Department of Fish and Game and the US Forest Service protocols.

Fish Passage and Entrainment Mortality Study

Issues related to fish passage and entrainment needs to be refined. Relevant agency personnel from the California Department of Fish and Game, U.S. Forest Service, and State Water Resources Control Board will be contacted to identify specific concerns relevant to fish passage and entrainment.

The contractor will meet with appropriate agency personnel to determine the need for monitoring fish passage at the South Fork American River Diversion Dam. The contractor will incorporate the findings of those meetings into a feasibility report for conducting fish passage sampling at the Diversion Dam.

The contractor will also determine the need for entrainment sampling, based on agency concerns, at feeder tributary diversions that divert water into the El Dorado Canal. The contractor will prepare a feasibility report for conducting entrainment sampling at feeder tributary diversion locations that will include the findings from agency personnel meetings and interviews. This report will also include an evaluation of the most efficient and effective methods for conducting entrainment monitoring.

Terrestrial Resources

Potentially Occurring Terrestrial Special Status Species

Initial review of habitats found within the project area was conducted to ascertain if suitable habitat and/or critical habitat for those species found on the potentially occurring special status species list exists within the project area. Reconnaissance and determinate level surveys

were conducted for: special status amphibians and reptiles; special status plant species; special status birds; and special status mammals.

The contractor will review these surveys and findings for compliance with the available agency guidelines for each species. Surveys found to be inconsistent with agency level Determinant Protocol may require further analysis. Consultations with resource agencies will be needed to comply with the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA). The resource agencies may include the California Department of Fish and Game, the US Fish and Wildlife Service, the US Army Corps of Engineers, and the US Forest Service.

Surveys needed will be conducted for the appropriate duration and time of the year to determine presence or absence of each of the species within the project boundary. Survey reports will include survey timing, methods, materials, and presence/absence information and locations, if found. The reports will also include appropriate graphics, any other relevant information gleaned from the surveys, and a list of all species observed while the surveys were conducted.

For each special status species that is found to occur within the project boundary or has designated critical habitat within the project boundary (regardless of species presence or absence), an analysis will be prepared that addresses the potential direct and indirect effects to each species and/or critical habitat resulting from project activities; and appropriate measures that will minimize or eliminate these effects.

Discussion of survey results and mitigation efforts must include findings made by the U.S. Fish and Wildlife Service in any Biological Opinion issued, pursuant to Section 7 or Section 10 of the federal Endangered Species Act. Mitigation measures or alternatives to the proposed project, determined necessary by the U.S. Fish and Wildlife Service for the protection of special status species, must be clearly presented.

In addition to special status species concerns, the contractor will need to address project impacts to deer migration in reference to the 22.3 miles of Canal and the existing wildlife crossings of the Canal. Wildlife crossings originally installed along the Canal may no longer provide adequate migratory corridors for current deer herd migration movements and patterns. The California Department of Fish and Game and the U.S. Forest Service have requested a two-year study of deer migration movements and patterns utilizing remote camera stations. The study will address the adequacy of the wildlife crossings and the potential need for additional crossings. Location and timing of the remote camera stations will be chosen in consultation with the California Department of Fish and Game and the U.S. Forest Service.

Wetland & Riparian Vegetation

Project 184 was surveyed for wetland and riparian vegetation with U.S. Forest Service approved protocol. The vegetation analysis included an assessment of existing vegetation communities and their relative habitat values for wildlife. Habitat characterization included mapping of vegetation and habitat throughout the project area. Global Information System (GIS) database and associated graphics of the mapping efforts are available. Survey work was also begun for species composition in sensitive reaches and willow recruitment. The contractor will need to review results of any surveys conducted to date for these studies and assess the need for further survey work.

Late season lake releases, in preparation for winter storms, may be a critical factor limiting the successful recruitment of riparian species. The contractor will utilize the existing vegetation data to provide an analysis of the potential beneficial and negative impacts of manipulated flow and the effects that increased acreage draw will have on the existing wetland and riparian habitat. An estimate of acreage and type of riverine and meadow habitat removed and created as a result

of impoundments, powerhouses, access roads, canals or other structures related to Project 184 constructed within riparian zones is needed. In addition, mitigation measures or alternatives to Project 184, as proposed, must be clearly presented.

Cultural Resources

A substantial amount of cultural resource management analysis has already been completed as an element of the relicensing. Attention to “historic properties” identified in the project’s area of potential effect (APE) is required under Section 106 of the National Historic Preservation Act (NHPA). The implementing regulations for Section 106 of NHPA are codified at 36 CFR Part 800. Consultations regarding other property types may also be needed to comply with the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), the Native American Graves Protection and Repatriation Act (NAGPRA), and other state, federal, and local authorities. Principal consulting parties include the El Dorado Irrigation District (EID), several federal agencies (Federal Energy Regulatory Commission [FERC], USDA-Forest Service, Advisory Council on Historic Preservation [ACHP]), the California State Historic Preservation Officer (SHPO), and Native Americans.

A Programmatic Agreement (PA) has been prepared and is currently under review by the various consulting parties. The remaining cultural resources management tasks will be carried out under the terms of the PA once it is finalized. These tasks include:

1. Review of the cultural resources management file associated with Project 184.
2. Provide continuing liaison between the consulting parties and agencies regarding potential effects to cultural resource sites in the APE.
3. Complete historic property identification work in portions of the APE to satisfy the requirement of 36 CFR § 800.4 (implementing regulations for Section 106 of the NHPA). This work will require assessment of eligibility for nomination to the national register of historic places (NRHP) and detailed coordination with consultants engaged in previous and ongoing archaeological investigations in the project area. A single comprehensive report documenting the identification efforts in the project APE is required. Additional archaeological field studies should complement and augment previous and ongoing work, and should be guided by the *Framework for Archaeological Research and Management for Forests of the North-Central Sierra Nevada*.
5. Prepare data recovery plans, if necessary, for those “historic properties” that require mitigation of adverse effects through archaeological excavation. Data recovery plans should be responsive to the ACHP’s *Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites*, published in the Federal Register (Vol. 64, No. 95:27085-27087, May 18, 1999) as an appendix to the current NHPA implementing regulations (36 CFR § 800).
6. Review existing draft Heritage Resource Management Plan (August 2000) and make any suggested changes based on consulting party review. The Management Plan shall be coordinated with the detailed specifications with the Programmatic Agreement.
7. Provide archaeological expertise on an “on-call” basis for monitoring ground disturbance, investigating “inadvertent discoveries” in accordance with 36 CFR § 800.13, and briefing non-technical project personnel on the proper procedures and

regulatory requirements of various authorities. Procedures for handling inadvertent discoveries should be detailed in the CRMP.

8. Coordinate and provide public interpretation of the historic and archaeological values of the project area in accordance with the terms of the draft PA.

9. Provide an annual summary report, to be filed with the consulting parties, addressing cultural resource management tasks. Summary report contents will comply with the outline provided in the draft PA.

10. Coordinate, through the U.S. Forest Service, with Native American groups to document ethnographic resources. The U.S. Forest Service will facilitate contacts and meetings with the appropriate Native American tribes.

The work required to complete the cultural management tasks should be supervised by a Principal Investigator meeting the Secretary of Interior's Professional Qualifications Standards for the appropriate subdisciplines (48 FR 44739).

Recreation

A large amount of work has been completed to determine the extent of recreational activity that currently exists on Project 184 waters and shoreline and in particular to create recreational user profiles. However, some of this data remains in raw form and additional study and analysis of the recreational aspects of the Project 184 is needed.

Identify and map areas where recreation occurs and their intensity and frequency within the project area. Determine the recreational carrying capacity by type and location. Conduct studies to determine current and future demand. Recreation studies should attempt to determine the degree and nature of induced recreational activities as a result of project elements. Studies should consider both development of user profiles and contingent uses.

Provide information on the on-water, fishing, and other recreational opportunities at the reservoirs and on major streams affected directly and indirectly by manipulation of watershed hydrology. This discussion should analyze the relationship between lake levels and stream flow releases in the major tributaries but need not consider recreational activities downstream of Slab Creek. Analysis must consider cumulative impact and adequately address how project operations may adversely affect flow dependent recreational opportunities geographically. In addition analysis should address how flow manipulation may adversely affect flow dependant recreation opportunities seasonally.

Correlate the potential adverse affects of recreational activities on sensitive species or habitat. Include resource condition and impacts caused by recreation use within existing facilities and resulting from dispersed use.

Part B: Environmental Impact Report

Concurrent with the application to FERC for relicensing, EID issued a "Notice of Preparation" (NOP) of an Environmental Impact Report on February 22, 2000. The NOP and scoping comments in response to it are included as attachments to this RFP.

As lead agency, EID is required to prepare environmental documents and analysis for all California responsible agencies including the State Water Resources Control Board. It is intended that the CEQA EIR process be conducted simultaneous to the FERC EIS process but is not intended to produce a combined EIR/EIS document. The preparation of the EIR, however, shares much of the same data as the FERC process and it is the intent of EID to

incorporate much of the technical data and analysis produced in the special studies listed in Part A into the EIR. For this reason, should an independent contractor be selected to prepare the EIR, a high degree of coordination with the contractor retained on Part A is necessary. As part of its management responsibility, EID will establish a process and format for such coordination, under the general direction of its Relicensing Counsel.

For the most part, the contractor responsible for Part A studies will be the interface with involved agencies on the studies which agency staff have requested and will respond to all technical comments in regard to the contractor's work. The EIR contractor will be responsible for all other data collection, analysis and document preparation, integration into the EIR, and responses to comments regarding the draft EIR.

Proposal Format

Respondents are requested to submit an initial qualifications proposal. Based upon EID's review of qualifications, and at EID's sole discretion, selected firms will be invited to submit a full proposal for work. The preferred content of each proposal is as follows:

Phase I: Qualifications Phase

A. **Brief Statement of Work Proposed:** Respondents shall state whether they propose to undertake work as identified in Part A (in full or in part), Part B, or both.

B. **Project Objectives and General Qualifications:** Briefly indicate your understanding of the project objectives. Provide a statement of relevant work experience, your understanding of the FERC regulatory process and CEQA process, and any other work experience that may bear on the qualifications of your firm and that of proposed sub-contractors. List similar recent projects, clients, and the current status of such projects. Respondents may be requested to submit a recent sample of your firm's work product on a similar project, if available.

C. **General Approach:** Provide a general description of your approach to undertaking identified tasks including interaction with regulatory agencies, and public involvement.

D. **Project Management and Key Personnel:** Include the proposed management structure and organization, including qualifications and relevant experience of key personnel and sub-contractors who will be working on the project. Relevant experience should include any experience working within an interdisciplinary team framework.

E. **Potential Conflict of Interest Statement:** Provide a statement of any current or past relationships between your firm or any identified sub-contractors, with Project 184 Intervenors and/or any groups or individuals identified on the FERC Project 184 Service List.

NOTE: In responding to Phase I, consultants are requested to avoid direct contact with the staff of regulatory agencies including: FERC, United States Forest Service, State Water Resources Control Board, Regional Water Quality Control Board, State Department of Fish & Game, US Fish & Wildlife Service and El Dorado County. Maintenance of relationships with regulatory agencies is of critical importance to EID and this request is made in recognition of the workloads of staff at these agencies.

Phase II: Proposal (by invitation only)

A. **Detailed Work Program:** Describe technical work to be prepared, including methodologies and techniques to be used in carrying out each task. Describe any relevant use of accepted protocols for conducting field work, use of sub-consultants, laboratories and reporting requirements and procedures. Where modeling is proposed, briefly describe the nature of the model, its output, documentation and any proprietary aspects of code, data or results. Identify any data requirements, reports, GIS materials or studies which are expected to be provided by the District, regulatory agencies or other parties other than that which is generally available in public record sources.

B. **Deliverables:** List all proposed work products including draft documents. Identify all graphic and/or data products suitable for inclusion in the District's Project 184 GIS database.

C. **Preliminary Timeline:** Graphically show the preliminary start, duration, review and completion of all tasks and task-related products. Show all milestones including draft and final deliverables, public hearings, and major decision points.

D. **Cost and Monthly Invoicing:** The cost of each task shall be identified as well as cost per hour for each labor category. The payment proposal shall provide an estimated not-to-exceed cost including task subtotal costs for administrative drafts of work products, Response to Draft EIR Comments and the Final EIR, copying costs and other expenses related to the task. The proposal shall also include how other incidental expenses, including travel costs are to be billed. The District reserves the right to negotiate the final contract price.

Monthly invoicing identifying percentage of task completed is required. Monthly invoicing must detail cost per task completed on each work product, copies of sub-consultant invoices and shall provide a cumulative summary of costs incurred on each task. All time charges shall be in increments of 15 minutes or less.

Final Selection Criteria

The following is a partial list of the District's criteria for the selection of a Consultant for each part:

A. Understanding of the FERC licensing process (Part A); and, EIR process (Part B) and the character and associated impacts of the proposed project;

B. Expertise, technical ability and experience of assigned personnel;

C. Quality of Consultant's related work experience;

D. Demonstrated ability to work in a positive manner with agency staff, meet schedules, and work within an interdisciplinary team framework;

E. Absence of conflict of interest on recent, direct working relationships with the project applicant and/or intervenors to the FERC licensing process for Project 184;

- F. "Not-to-exceed" cost estimate for the work, and competitive salary scales that are commensurate with the expertise of personnel assigned to the project;
- G. Responsiveness to requirements, terms and conditions of this RFP.

Limitations

- A. All reports and pertinent data or materials shall become the sole property of the District and may not be reproduced or provided to a third party without the explicit written permission of the District.
- B. All tasks in the consultant work program are the responsibility of the consultant team unless specifically the responsibility of the District. Good business practice such as formal letters of request and making of appointments should be followed.
- C. The RFP does not commit the District to award a contract, to pay any costs incurred in preparation of the proposal to procure or contract for services or supplies. The District reserves the right to accept or reject any or all proposals, in whole or in part, received as a result of this request; to negotiate with any qualified source; or to cancel in part or in its entirety this RFP, if it is in the best interest of the District to do so. The District may require the successful respondent make revisions to the work program as may be needed.

Filing Proposals

All proposals should be received by the El Dorado Irrigation District no later than **5:00 p.m. April 6, 2001** and addressed as follows:

Project 184 Oversight Committee
Attention: General Manager
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

Any questions regarding this RFP may be directed to:

Richard Floch, Consultant, Project 184 Oversight Committee
916-933-5026
rfa@inreach.com (preferred)

Resource Documents (partial list)

1. *FERC Project 184: Application for License* (8 volumes), El Dorado Irrigation District, February 2000
2. *FERC Project 184-065 EIS Scoping Documents 1 and 2*, FERC, 2000
3. *Notice of Preparation (EIR)*, El Dorado Irrigation District, February 22, 2000
4. *Responses to NOP*, (various agencies, intervenors and other individuals), 2000
5. *FERC Project 184: Application for Amendment of the Existing License* (Repairs), El Dorado Irrigation District

6. *Draft and Final EIR: Acquisition, Repair, Operation and Acquisition of 17,000 af New Consumptive Water* (4 volumes), Resource Insights, July, 1999
7. *Federal Power Act Section 4e Conditions for Project 184* (Diversion Dam Repairs), United States Forest Service, October 2000
8. *(Draft) Federal Power Act Section 4e Conditions for Project 184* (Relicensing), United States Forest Service, December 2000
9. *Cultural Resources Management Plan (Diversion Dam Repair and Tunnel Project)*, David White, PhD, July 2000
10. *El Dorado County General Plan and EIR*, El Dorado County, January 1995²
11. *El Dorado Project 184 GIS Database*, Price & Associates

GIS Contents:

Category	Feature	Description	Created or last edited by	Date last edited
PHYSICAL				
	Transportation	Roads, trails, ski lifts, etc	USFS	2000
	Streams & Lakes	SF American & Consumnes watersheds	USFS	2000
	Watershed	Watershed boundaries	USFS	2000
	Contours	40 interval, DLG	USGS	Various
	Vegetation - USFS	USDA-Forest Service Vegetation	USFS	1999
<u>Cultural</u>	Historic Properties	Historic and Pre-historic archaeological sites	PGC	2000
	Historic Surveys	Locations of archaeological field surveys	PGC	2000
<u>Boundary</u>	Public Land Survey	Section lines, township, range & section numbers	USGS	Various
	Parcels	Parcels lines, ownership	EDC-GIS	Apr.1999
	EID Ownership	Property owned or controlled by EID	PGC	2000
	FERC Boundary		PGC	2000
	APE Boundary	Area of Potential effect for Bull to Mill Tunnel	PGC	2000
<u>Project Facilities</u>	Canal	Location, type (flume, tunnel, siphon, etc)	PGC	2000
	Access Roads	Project access roads	PGC	2000
	Bridges	Bridges over canal	PG&E	1996?
	Deer escape ramps		PG&E	1996?
	Equipment	Equipment ramps	PG&E	1996?
	Alarm	Alarm locations	PG&E	1996?
	Spillways	Locations of canal spillway locations	PG&E	1996?
	Spillway Channels	Channel locations	PG&E	1996?
	Drainage Crossing	Location of drainage crossover points	PG&E	1996?
	Gauging Stations	Location, type	PGC	2001
	Thermograph	Location, type	PGC	2000
	Weather Station	EID installations only	PGC	2000
<u>Imagery</u>	DOQQ Ortho-photo	Partial coverage, 1meter ground resolution	USGS	1994-1996
Key				
EID	= El Dorado Irrigation District			
EDC-GIS	= El Dorado County Geographic Information System			
PGC	= Price Geographic Consulting			
PG&E	= Pacific Gas & Electric Company			
USFS	= United States Forest Service			
USGS	= Unites States Geologic Survey			

² In 1998 the county general plan EIR was successfully challenged in Superior Court. The Court found certain deficiencies in the EIR and ordered the County to correct those deficiencies while allowing the County to approve certain types of projects, as specified in the Order. To date, the County has not completed work in response to the Order.

In addition to the above documents, FERC maintains online files of all orders issued by FERC and documents received by FERC in a searchable database. For all searches of the FERC database, the docket number is: "P-184" and require an appropriate date range.

- For all FERC Orders related to Project 184, the CIPS database can be searched through the "Docket #" sub-menu at: <http://cips.ferc.fed.us/cips/default.htm>
- For all documents online, the RIMS database can be searched through the "Docket #" sub-menu at: <http://rimsweb1.ferc.fed.us/rims>

Attachments:

Project Facilities Map
NOP and comments

